Name: _____ **Drafting**

Directions:
Evaluate the student by checking the appropriate number to indicate the degree of competency. The rating for each task should reflect employability readiness rather than the grades given in class.

Rating Scale (0-6):

- **0 No Exposure** – no experience/knowledge in this area; program/course did not provide instruction in this area
- **1 Unsuccessful Attempt** – unable to meet knowledge or performance criteria and/or required significant assistance
- **2 Partial Demonstration** – met some of the knowledge or performance criteria with or without minor assistance
- **3 Knowledge Demonstrated** – met knowledge criteria without assistance at least once
- **4 Performance Demonstrated** – met performance criteria without assistance at least once
- **5 Repetitive Demonstration** – met performance and/or knowledge criteria without assistance on multiple occasions
- **6 Mastered** – successfully applied knowledge or skills in this area to solve related problems independently

(C) – Indicates the core competencies.

0	1	2	3	4	5	6	**A. Describe and interact with all drafting systems, including occupation opportunities, safety, codes/standards, terminology, and organizational skills**	**Notes:**
							1. Identify safety policies and procedures **(C)**	
							2. Identify ANSI and other standards and codes	
							3. Develop an understanding of the industry (e.g. permanence, value, and relevance of work) **(C)**	
							4. Identify the various occupations	
							5. Demonstrate organizational skills (e.g. record-keeping procedures) **(C)**	
							6. Demonstrate file management and storage principles **(C)**	
							7. Identify ergonomic principles (e.g. posture, work station design, instrument placement in the work area, and working with an Exacto knife)	
							8. Use drafting terminology **(C)**	
							9. Produce copies (e.g. blueline and blackline)	
							Other:	

0	1	2	3	4	5	6	**B. Demonstrate basic drawing skills**	**Notes:**
							1. Identify and use tools and equipment **(C)**	
							2. Read and transfer measurements **(C)**	
							3. Demonstrate sketching techniques (e.g. freehand lettering)	
							4. Demonstrate entry level skills (e.g. drafting by hand, working with triangles, and working with a T square)	
							5. Demonstrate basic layout drawing (e.g. borders and information blocks) **(C)**	
							6. Use line types and weights **(C)**	
							7. Use geometric construction principles **(C)**	

							8. Demonstrate the proper use of drawing instruments and equipment	
							9. Use drawings instruments and media	
							10. Construct a reproducible drawing with mechanical pencils	
							Other:	

0	1	2	3	4	5	6	**C. Demonstrate basic computer skills**	**Notes:**
							1. Develop an understanding of the computer operating system **(C)**	
							2. Use data storage, retrieval, and back-up systems (e.g. microfilm, DVD, tape back-up, and CD-ROM) **(C)**	
							3. Use the Internet	
							4. Use scanning equipment and software	
							5. Use word processing software programs **(C)**	
							6. Demonstrate file management principles (e.g. data transfer) **(C)**	
							7. Develop an understanding of computer viruses	
							8. Use desktop publishing software programs	
							9. Install and configure software and hardware (e.g. plotter)	
							10. Operate and customize input devices	
							11. Operate and customize output devices	
							Other:	

0	1	2	3	4	5	6	**D. Demonstrate basic communication skills**	**Notes:**
							1. Demonstrate listening skills **(C)**	
							2. Use proper spelling and grammar **(C)**	
							3. Demonstrate oral and written communication skills **(C)**	
							4. Demonstrate teamwork skills **(C)**	
							Other:	

0	1	2	3	4	5	6	**E. Construct and interpret multiview orthographic projections**	**Notes:**
							1. Demonstrate visualization skills **(C)**	
							2. Identify the use and application of orthographic drawings (e.g. 3rd angle)	
							3. Identify 1st and 3rd angle projection drawings	
							4. Interpret an orthographic projection (e.g. 3rd angle)	
							5. Prepare orthographic drawings **(C)**	

							6. Sketch multiview drawings **(C)**	
							7. Create a drawing from a view of a model (e.g. orthographic projection) **(C)**	
							Other:	

0	1	2	3	4	5	6	**F. Construct and interpret auxiliary views**	**Notes:**
							1. Identify the use and application of auxiliary views **(C)**	
							2. Construct a primary auxiliary view **(C)**	
							3. Construct a secondary auxiliary view	
							Other:	

0	1	2	3	4	5	6	**G. Construct and interpret descriptive geometry/revolutions**	**Notes:**
							1. Perform graphic solutions of points, lines, and planes	
							2. Perform graphic solutions of intersections (e.g. lines, planes, and solids)	
							3. Solve true length of lines, bearing, and slope of lines **(C)**	
							4. Perform graphic solutions of solids	
							5. Construct drawings using the revolution method	
							Other:	

0	1	2	3	4	5	6	**H. Construct and interpret sectional views and conventions**	**Notes:**
							1. Identify the use and application of sectional views **(C)**	
							2. Draw standard sectional views **(C)**	
							3. Use conventional breaks	
							4. Identify the symbols used to represent different materials	
							5. Use cutting plans **(C)**	
							Other:	

0	1	2	3	4	5	6	**I. Construct and interpret pictorial drawings**	**Notes:**
							1. Apply line of sight	
							2. Use isometric view	
							3. Identify the use and application of pictorial drawings **(C)**	
							4. Sketch pictorial drawings	
							5. Construct axonometric, oblique, and perspective drawings	
							Other:	

0	1	2	3	4	5	6	**J. Apply dimensioning and tolerancing to specific fields of drafting consistent with industry standards**	**Notes:**
							1. Produce a dimension drawing using ANSI and ISO standards	
							2. Demonstrate geometric dimensioning and tolerancing **(C)**	
							3. Construct the lines used in dimension drawings **(C)**	
							4. Apply dimensioning practices **(C)**	
							5. Apply tolerancing **(C)**	
							Other:	

0	1	2	3	4	5	6	**K. Apply mathematical skills to solve drafting-related problems**	**Notes:**
							1. Demonstrate basic math principles **(C)**	
							2. Solve problems using formulas **(C)**	
							3. Solve problems using algebra **(C)**	
							4. Solve problems using geometry **(C)**	
							5. Solve problems using trigonometry **(C)**	
							Other:	

0	1	2	3	4	5	6	**L. Construct drawings using basic CAD skills**	**Notes:**
							1. Use the view and display commands (e.g. zooming and panning) **(C)**	
							2. Use query commands to extract drawing data **(C)**	
							3. Modify an existing drawing **(C)**	
							4. Enter and edit text **(C)**	
							5. Work with multiple drawings using cut and paste, etc.	
							6. Create, edit, and retrieve components and symbol libraries **(C)**	
							7. Plot drawings to the proper scale **(C)**	
							8. Apply scaling techniques	
							9. Identify and apply layering techniques **(C)**	
							10. Use the Line-Type (LT) scale	
							11. Demonstrate drawing techniques **(C)**	
							12. Perform drawing setups to applicable standards (e.g. settings, layers, line types, and widths) **(C)**	
							13. Create a 2-D drawing **(C)**	

							14. Use Cartesian coordinates **(C)**	
							Other:	

0	1	2	3	4	5	6	**M. Construct models and assemblies using advanced CAD skills**	**Notes:**
							1. Use the Internet and/or network within CAD (e.g. team projects)	
							2. Create 3-D assemblies	
							3. Create and edit a solid model **(C)**	
							4. Use various software programs to produce a product **(C)**	
							5. Demonstrate an understanding of models **(C)**	
							6. Use geometry in parametric programs	
							7. Create 2-D geometry form 3-D models	
							8. Extract surface and mass properties (e.g. area and perimeter) **(C)**	
							9. Import and export various file formats (e.g. BXF,IGES, and roster)	
							10. Perform customization to improve productivity	
							Other:	

0	1	2	3	4	5	6	**N. Construct basic manufacturing production drawings consistent with industry standards and codes**	**Notes:**
							1. Produce a machine assembly drawing	
							2. Produce detail drawings applying standard machine fits, finishes, and tolerances and fasteners	
							3. Produce drawings for welded component parts **(C)**	
							4. Develop a parts list (e.g. balloons) **(C)**	
							5. Produce a file and/or drawing for CAD/CAM applications	
							6. Produce drawing for gears	
							7. Produce drawing for cams	
							8. Identify the use and application of threads and fasteners (e.g. bolts, pins, and keys) **(C)**	
							9. Produce drawings for metal bending and fabricating **(C)**	
							10. Apply standard fits, finishes, and tolerances to a machine drawing **(C)**	
							11. Identify manufacturing processes (e.g. machine, metal forming, and CNC)	
							Other:	

0	1	2	3	4	5	6	**O. Construct basic architectural drawings consistent with industry standards and codes**	**Notes:**
							1. Produce elevation drawings	
							2. Construct architectural symbols	
							3. Produce floor plans	
							4. Identify architectural design and planning principles **(C)**	
							5. Identify basic construction terminology and materials **(C)**	
							6. Use perspectives and pictorials	
							7. Produce typical wall and building sections with necessary details **(C)**	
							8. Identify applicable building codes	
							9. Measure, sketch, and draft an as-built floor plan **(C)**	
							10. Prepare a schedule using a freehand architectural style lettering	
							11. Produce a site plan **(C)**	
							12. Produce a foundation plan **(C)**	
							Other:	

0	1	2	3	4	5	6	**P. Construct basic residential and commercial wiring drawings consistent with industry standards and codes**	**Notes:**
							1. Identify applicable codes (e.g. IEC, NEC, and IEEE)	
							2. Identify electrical symbols	
							3. Produce wiring schematics **(C)**	
							Other:	

0	1	2	3	4	5	6	**Q. Construct basic electronic drawings**	**Notes:**
							1. Identify electronic symbols	
							2. Produce input/output charts	
							3. Produce electronic/electrical schematics and diagrams	
							Other:	

0	1	2	3	4	5	6	**R. Construct basic pipe/plumbing drawings consistent with industry standards and codes**	**Notes:**
							1. Identify applicable codes	
							2. Identify piping symbols, fittings, fixtures, and valves	
							3. Identify principles of pneumatics and hydraulics	

							4. Produce pneumatics and hydraulic schematics **(C)**	
							5. Produce plumbing schematics **(C)**	
							Other:	

0	1	2	3	4	5	6	**S. Construct basic structural steel drawings consistent with industry standards and codes**	**Notes:**
							1. Identify applicable codes (e.g. OSHA, AWS, SJI, and BOCA)	
							2. Identify and apply welding symbols **(C)**	
							3. Identify structural steel shapes	
							4. Identify steel-framing materials	
							5. Produce a detail and assembly drawing (including beam connections) with bill of materials **(C)**	
							6. Produce a steel frame plan drawing **(C)**	
							Other:	

0	1	2	3	4	5	6	**T. Construct basic civil/GIS (Geographic Information Systems) drawings consistent with industry standards and codes**	**Notes:**
							1. Demonstrate land surveying techniques (e.g. property line, corners, symbols, coordinates, base line, and typical sections)	
							2. Identify the uses of GIS and Global Positioning Systems (GPS)	
							3. Produce a land survey plot from a written description **(C)**	
							4. Figure the area using manual and computer methods	
							5. Produce a contour plan **(C)**	
							6. Produce a profile drawing **(C)**	
							7. Demonstrate map reading skills	
							8. Demonstrate map drawing skills	
							Other:	

0	1	2	3	4	5	6	**U. Construct sheet metal/HVAC drawings consistent with industry standards and codes**	**Notes:**
							1. Identify applicable codes (ASHRAE)	
							2. Identify HVAC symbols	
							3. Identify sheet metal layout procedures	
							4. Produce representative sheet metal drawings **(C)**	
							5. Produce sheet metal drawings for CAD/CAM applications **(C)**	

							6. Prepare a HVAC duct work plan	
							Other:	

0	1	2	3	4	5	6	V. **Demonstrate leadership skills in the classroom, industry, and society ****	**Notes:**
							1. Demonstrate an understanding of SkillsUSA-VICA, its structure, and activities	
							2. Demonstrate an understanding of one's personal values	
							3. Perform tasks related to effective personal management skills	
							4. Demonstrate interpersonal skills	
							5. Demonstrate etiquette and courtesy	
							6. Demonstrate effectiveness in oral and written communication	
							7. Develop and maintain a code or professional ethics	
							8. Maintain a good professional appearance	
							9. Perform basic tasks related to securing and terminating employees	
							10. Perform basic parliamentary procedures in a group meeting	
							Other:	

*****NOTE: These competencies are addressed in the Missouri SkillsUSA-VICA Curriculum Guide lessons***